

Supplementary Table S2—Mast cell tumor 3-tier grading scheme (Patnaik et al. 1984)

Grade	Extent of involvement	Cellularity and cellular morphology	Mitotic figures per 0.237 mm² equivalent of 1 hpf	Stromal reaction
1	Neoplastic cells confined to dermis and interfollicular spaces	Well differentiated, arranged in rows or small groups, round and monomorphic cells with ample cytoplasm and distinct cytoplasmic boundaries, medium-sized intracytoplasmic granules, round nuclei with condensed chromatin	0	Minimal edema and necrosis
2	Neoplastic infiltration or replacement of the lower dermal and subcutaneous tissues, possible extension into skeletal muscles or surrounding tissues	Moderately to highly cellular, moderately pleomorphic cells arranged in groups with thin fibrovascular stroma, round to ovoid cells with scattered spindle and giant cells, distinct cytoplasm with fine intracytoplasmic granules in most cells (occasionally indistinct cytoplasm with large and hyperchromatic granules), nuclei round to indented with scattered chromatin and single nucleoli (occasional cells have double nuclei)	0-2	Areas of diffuse edema and necrosis
3	Neoplastic replacement of subcutaneous and deep tissues	Cellular and pleomorphic, medium-sized, round/ovoid/spindle-shaped cells arranged in closely packed sheets, indistinct cytoplasm with fine intracytoplasmic granules or granules that are not obvious, fibrovascular or thick and fibrocollagenous stroma with areas of hyalinization, indented to round vesiculated nuclei with one or more	3-6	Edema, hemorrhage, and necrosis common

		prominent nucleoli, binucleated cells common, many giant cells and scattered multinucleated cells		
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